DOI Science Priorities

America's public lands provide shelter and sustenance for a diverse array of species—both natives and invasive exotics—and contain critical natural resources (water, land, minerals) that must be managed for multiple purposes. Managing these physical and biological resources, while preserving ecosystem health and sustainability, requires an integrated scientific approach to ensure that decisions are based on sound understanding of ecosystems and the processes that occur within them.

In FY 2001 a new Department of the Interior (DOI) Agreement, signed by all the DOI bureau directors, will be implemented to provide integrated scientific research and information necessary for DOI land and resource decisions. The requested $13 million will be used to develop projects to meet the high-priority management requests from each DOI bureau at the funding levels shown: $3 million each for Bureau of Land Management, U.S. Fish and Wildlife Service, and National Park Service, and $1 million each for Bureau of Indian Affairs, Bureau of Reclamation, Minerals Management Service, and Office of Surface Mining.

Each bureau has provided a list of management or regulatory issues and proposed work under the following categories.

Strategies for Ecosystem Restoration: Federal managers depend on sound scientific information to restore the landscape to the level desired. Specific requests for work in FY 2001 include studies of acid mine drainage on the Monongahela River; abandoned mine land reclamation in selected watersheds in western states; effects of oil and gas development on habitats of sage grouse, mule deer, and pronghorn in southwestern Wyoming; "big-river fish" such as the bonytail chub and razorback sucker reintroduced in the Lower Colorado River Basin; and impact of dam removal on fish habitats. BIA has requested that USGS provide research and information to assist selected Tribes in the development of Integrated Resource Management Plans.

Ecosystem Monitoring Protocols: Ecosystem monitoring provides land managers with the information they need to evaluate the outcomes of their management practices and to model and monitor ecosystem restoration activities. Requests from DOI managers include inventory and monitoring protocols to assist wildlife refuges; status and trends of the genetic diversity of salmon and trout species in central and southern California; development of water quality and ecological models to support adaptive management strategies for reservoirs on the Colorado River; ground-water flow models and water-quality studies of the desert southwest to determine water rights issues; mineral resource assessments for use in developing resource management plans in Oregon; and identification of gas hydrates and effects of their development on associated exotic worm tube communities in the Gulf of Mexico.

Rangeland and Riparian Health: Rangeland ecosystems in arid and semi-arid environments often have limited ability to adjust to ecological stresses such as cattle and sheep grazing, invasion of non-native species, large resident populations of wild horses, and fire.

	(Dollars in Thousands)
National Mapping Program	
Geographic Research and Applications	+$ 1,300
Geologic Hazards, Resources, and Processes	
Geologic Landscape and Coastal Assessments	
Earth Science Dynamics	+$ 1,950
Water Resources Investigations	
Water Data Collection and Management	
Hydrologic Networks and Analysis	+$ 3,250
Biological Research	
Biological Research and Monitoring	+$ 6,500
TOTAL	+$13,000

USGS will begin a study to determine the long-term genetic viability and behavioral characteristics of wild horse herds and their effect on rangeland health in Utah and Nevada and will research the role of fire in rangeland ecosystems, including the effects and ecological consequences of fire and post-fire treatments on ecosystem response.

Declining Species and Species at Risk: The USGS will assist DOI bureaus in developing national monitoring protocols; assessing status and trends; assessing the quantity, quality, and suitability of existing habitats; and understanding the effects of land management practices on the habitats of those species. These studies will lead to a better understanding of management practices that promote species viability and perhaps to identification of alternative management strategies. Suggested species for study include declining plant and bird species in Hawaiian forests; several species in the Columbia Basin shrub steppe; species endemic to alkali scrub habitats in California's Central Valley; and colonial waterbirds/seabirds in the Gulf of Mexico, the Great Lakes, and other coastal regions. In addition, under the DOI Science Initiative, USGS proposes $2 million to conduct research on amphibians, a keystone species that is a great indicator of ecosystem change.

Impacts of Invasive Species: DOI bureaus lack information in three broad categories: (1) effects of invasive species at the ecosystem level; (2) specific control techniques and their consequences; and (3) regional, integrated invasive species management plans that take into account current land management practices and the effects they have on the containment or spread of exotic species. Specific projects include determining how weeds, such as the perennial pepperweed, spread; understanding the impacts of weeds distribution on range forage productivity; and determining treatment options and restoration techniques.

Quick Response and Natural Resources Preservation Programs: These studies respond to short-term, tactical science needs for biological information that are targeted to specific wildlife refuges or parks. They can address many issues, including invasive species, threatened and endangered species, contaminants, and other issues that require an immediate response.

The results of these studies will provide useful, relevant information to decision makers who are tasked with managing resources in a changing world.

As the nation's largest water, earth and biological science and civilian mapping agency, the USGS works in cooperation with more than 2000 organizations across the country to provide reliable, impartial, scientific information to resource managers, planners, and other customers. This information is gathered in every state by USGS scientists to minimize the loss of life and property from natural disasters, contribute to sound economic and physical development of the nation's natural resources, and enhance the quality of life by monitoring water, biological, energy, and mineral resources.